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effects of irrigation on dryland farmers

No. 5
Oahe Conservancy Sub-District Series

Irrigation Effects on Dryland

Dryland farmers, 5, 10, 25, or even 200 miles from an irrigated area are concerned about the irrigated land. They wonder if irrigation will affect their dryland operations. They want to know what benefits they can get from it. Will it tend to stabilize their feed-livestock operations? Is an integrated irrigation-dryland farm unit feasible? And they want to know what the potentials will be for full or part-time employment.

Many factors and conditions are pertinent to the Lake Plain and Missouri Slope of the Oahe Unit that make it difficult to compare integrated irrigation-dryland areas in other states. Some of these factors and conditions are climate, soils, people, type of agriculture carried on in the dryland and irrigated areas, and size of irrigation project.

To shed light on some of the indirect benefits that dryland operators may get from irrigation we may best consult studies conducted in Montana and Nebraska to give us basis for some very important observations and this may best be approached by answering specific questions.

FEASIBILITY OF A DRYLAND-IRRIGATION FARM UNIT

Studies in Montana¹ and Nebraska² show that the most common and practical integrated dryland-irrigation farm unit is one in which cropland is irri-



Both full and part-time workers will be needed when new crops and processing plants are established in irrigated areas. In the Oahe Unit, a concentration of corn, alfalfa, livestock, sugar beets, and other agricultural products is likely.

gated and pasture or range for livestock is on dryland. This is more common in small irrigated projects than those covering a large area such as the North Platte Valley of Western Nebraska. That valley has about 400,000 acres of irrigated lands (comparable to the Oahe Unit of 482,000 acres.) Less than 8% of the valley farms are full scale integrated irrigation and dryland operating units. But on the Malta Project on the Milk River in Montana (25,000 acres of irrigated land) most of the irrigated farmers have dryland pastures and some have dryland cropping operations.

Most farmers felt that dryland livestock grazing was a good combination with irrigated cropland although few practiced it in the Nebraska valley. Few farmers felt that both irrigated and dryland crop production was practical because of the need for different sized machinery.

In a study of 64 farms on the Lower Yellowstone Irrigation Project³, 34 farmers irrigated all their land, whereas 30 farmers had dryland operations integrated with irrigation. Sixty-nine percent of the farmers indicated a preference for the irrigation-dryland unit.

Reports from Wyoming indicate that more and more dryland livestock ranchers are buying an irrigated farm for a winter feed base and/or for fattening livestock raised.

¹Irrigation Farmers Reach Out Into the Dryland, Bulletin 464, Montana State College Experiment Station, Bozeman, Montana.

²Integration of Irrigated and Dryland Farming in the North Platte Valley in 1946, U.S.D.A. Bureau of Agricultural Economics and Department of Interior, Bureau of Reclamation.

³Integrating Irrigation with Dryland Farming, Bulletin 433, Department of Agricultural Economics, North Dakota Agricultural Experiment Station, North Dakota State University, Fargo.

Compiled by Lloyd R. Wilson, District Extension Supervisor. Oahe Unit Report, U. S. Department of Interior, Bureau of Reclamation

OBTAINING CATTLE FOR FATTENING

In the North Platte Valley irrigation livestock feeders raise only 2% of their feeder cattle and less than 1% of the sheep. They bought directly from dryland ranchers, within 50 miles, 15% of their cattle and 2% of the feeder sheep. From beyond 50 miles, they bought 13% of feeder cattle and 84% of their sheep, and the rest through sale rings.

In 1946, 43,000 head of cattle and over 400,000 lambs were fattened in the North Platte Valley. In 1956-57, on the Lower Yellowstone Project in Montana, 12,336 cattle and 84,000 lambs were fattened on 49,000 irrigated acres.

Irrigation of the Oahe Unit would thus provide a local market for many thousands of feeder cattle and sheep produced in South Dakota.

EFFECTS OF FATTENING CATTLE

If the Oahe Unit follows the trend of other irrigated areas, certainly more livestock will be fat-

tened. Below is an example as to the effects of irrigation and fattening of cattle.

FEED SITUATION OF AN IRRIGATED-DRYLAND AREA

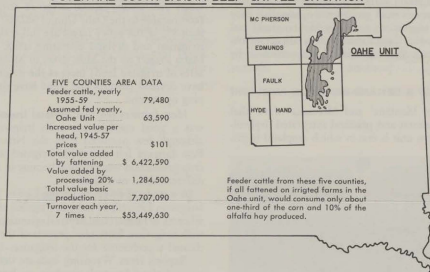
Again referring to the North Platte Valley, irrigating feeders bought nearly half their grain requirements, including dried beet pulp; and more than $\frac{1}{2}$ of their hay and roughage, including beet tops and wet beet pulp, during the 1946-47 feeding season.

Of the corn purchased, 6% came from nearby dryland farms and 83% from central and eastern Nebraska. Of the barley bought, 33% came from surrounding dryland farms.

Virtually none of the feed produced in the valley in 1946 was bought by dryland operators. During drought years, dryland operators bought some feed from the valley to maintain breeding herds. Wintering of range cattle on irrigated farms was common.

On the Lower Yellowstone Project⁴ in the winter of 1956-57, 3,399 cattle and 15,963 ewes were wintered under contract by irrigators for dryland operators.

POTENTIAL SOUTH DAKOTA BEEF CATTLE SITUATION



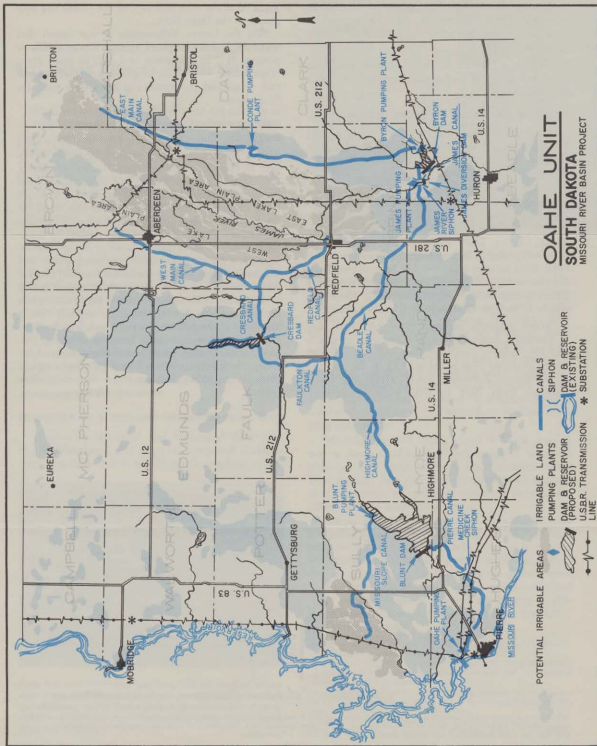
Cows and heifers kept for beef, two years old and older, average five counties, five years 1955-59... 117,760
 Needed for yearly replacement 12.5% or 14,720 head
 Calf crop (80% of 117,760) 94,208 yearly (less replacement) feeder calves each year... 79,488
 Calves from five counties (80% of 79,488 head) for feeding yearly in Oahe Unit... 63,590

Prices, steers } Feeders, good grade, 700 lbs @ \$21.18; Fat cattle, choice grade, 1050 lbs @ \$23.78
 1945-57, Sioux City }

Increased value per head... \$101
 Fat cattle processed in Oahe Unit are "appreciated" in value 20%
 Each dollar in basic production changes hands at least 7 times during the course of a year.

SOURCES: Cows and heifers kept for beef from South Dakota Crop and Livestock Reporting Service.
 Prices are average for 1945-57—Sioux City Market.

⁴J. Hall, *Century of Progress, Lower Yellowstone Project*, North Dakota-Montana, Bureau of Reclamation, Billings, Montana.



Most years the valley irrigation farmers fed or processed all of the feed produced and had to purchase nearly one half of the grain needed in their feeding operation.

Thus it is easy to see that irrigation would reduce the amount of feed grain shipped out of South Dakota.

EFFECT OF IRRIGATION ON CROPS GROWN

Only 2% of the irrigated land on the Belle Fourche Project is in wheat and the wheat acreage on the Angustora Project was reduced by 90% after irrigation was established.

When irrigation becomes established, wheat acreages in the Oahe Unit will be expected to be reduced by about 120,000 acres. This would be the equivalent of the acreage now being grown in Edmunds County. These wheat acres along with other acres will probably be largely planted to corn and alfalfa. Corn acreage will probably be increased from the present 16% of the total cropland to 29% and the alfalfa acreage from 6.5% to about 18%. There will also be an increase in acreage of irrigated pasture.

When irrigation becomes established there may be produced annually about 433,800 tons of alfalfa and 10½ million bushels of corn. All of the feeder calves produced (less replacements) in the counties of McPherson, Edmunds, Faulk, Hyde, and Hand (fatted from 700# to 1050#) would consume

about ⅓ of the corn and 10% of the alfalfa hay produced on the Oahe Unit.

On the Lower Yellowstone it was found that about 28% of the cropland acreage was in alfalfa or pasture, 31% in row crops, and 31% in small grain crops. About 42% of the cropland was used to grow cash crops and the remaining acres were used for feed crops.

EFFECT OF IRRIGATION ON JOB OPPORTUNITIES

When a concentration of a high quality product occurs, processing of this product generally develops. In the Oahe Unit, a concentration of alfalfa, corn, livestock, sugar beets, and other agricultural products is likely. To get these products into forms more easily handled and transported and ready for the consumer will require both full-time and seasonal workers. Estimates show there would be about 3,000 new job opportunities in some 30 agricultural processing plants. Many other processing plants and wholesale, retail, and service facilities would provide additional thousands of employment opportunities.

In the north Platte Valley, sugar beet growers hire dryland operators for beet hauling every fall. Nearly one-third of the laborers in the sugar beet factories each fall and winter come from surrounding dryland farms. During periods of drought dryland operators or family members found part-time employment in the valley, helping them over these slack periods.



Cooperative Extension Service

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